REMARKS

Amendments to the Claims

Claims 1 to 6 and 30 to 45 are in the application. Claims 1 to 4 and 6 are as originally filed. Claim 5 has been amended to more distinctly and explicitly define the contemplated modification. New dependent claim 30 depends from claim 1 and is directed to a solid substrate which is a coated slide. Support for this amendment is found in former claim 7 and 17 to 18. New claims 31 to 45 are based on former claims 7 to 21.

Election/Restriction

Responsive to the Examiner's election/restriction requirement, Applicant hereby elects claim group 1 (claims 1 to 21) without traverse. Claims 27 to 29 are withdrawn from the present application. Claims 22 to 26 were previously withdrawn.

Claim Rejections - 35 U.S.C. 112

The Examiner rejected former claims 1 to 11 and 16 to 21 (now claims 1 to 6, 30 to 35 and 40 to 45) under 35 U.S.C. 112 as being unclear for failing to particularly point out and distinctly claim the subject matter of the invention and for being incomplete for omitting essential steps. Applicant respectfully traverses.

The attachment of the binding cavity to the solid substrate can be made by any number of ways, with or without modification of the monomers or polymers to attach the binding cavity on the stamp covalently or non-covalently to the solid substrate. For example, page 9 (paragraph [0029]) states that

> "In one embodiment of the present invention, the MIPs are attached to the substrate via sulfide bonds created from the reaction of the solid substrate with thiol groups on the exterior surface of the binding cavity. According to the present invention, the surface-attachable thiol groups act as cross-linker between the binding cavity and the solid substrate, reducing the need for external cross-linking agents and increasing the proportion of recognition elements in the system".

Further, on page 10, paragraph [0035], it states

> "The binding cavity can attach to the solid substrate either through covalent or non-covalent interactions. Once attached, the binding cavity forms a molecularly-imprinted polymer".

Applicant respectfully submits that claim 1 points out and distinctly claims the contemplated subject matter. The step of "applying the solid support stamp to a surface of a

solid substrate to attach the binding cavity to the solid substrate" (step d of claim 1) would be well understood by the person of ordinary skill in the art. Restricting the claim to any specific method step providing such an attachment would be unnecessary and would unduly limit the scope of protection sought. Applicant also submits that there are no "missing steps" related to selecting or coating the substrate surface, the time needed for applying the stamp, the amount of applied force, or the particular environmental conditions necessary. All of these aspects would be well understood to the skilled person. Therefore, Applicant respectfully submits that the present claims 1 to 6 and 30 to 45 are compliant with 35 U.S.C. 112. Withdrawal of this rejection is requested.

In response to the Examiner's antecedent rejection of claim 7 (now claim 31) directed to "the coated slide", Applicant has added new claim 30 to introduce a coated slide. New claim 31 depends therefrom. Applicant has also amended former claim 8 (now claim 32) replacing "a coated slide" with "the coated slide". Withdrawal of this rejection is respectfully requested.

Claim Rejections - 35 U.S.C. 103(a)

The Examiner objected to former claims 1 to 5 and 7 to 21 (now claims 1 to 5 and 31 to 45) under 35 U.S.C. 103(a) as being unpatentable over Yilmaz et al. (U.S. 20040157209) in view of Whitesides et al. (Annual Review of Biomedical Engineering (2001) 3:335-73). Applicant has considered the Examiner's comments but respectfully traverses.

Claim 1 of the present application is directed to a method of producing a molecularly-imprinted chemical detection device comprising the steps of modifying the surface of a solid support through the attachment of functional groups; reacting the solid support with a derivatized molecular target to form a molecular target bound solid support; reacting the molecular target bound solid support with at least one guest molecule thus forming a solid support stamp having a binding cavity around the molecular target; applying the solid support stamp to a surface of a solid substrate to attach the binding cavity to the solid substrate; and removing the molecular target and solid support to produce a molecularly-imprinted polymer on the surface of the solid substrate. The present invention is directed to a method of producing a binding cavity on a flat surface and to release it from that surface. Further, molecularly imprinted polymers are printed by transfer from a stamp to a solid substrate surface.

As the Examiner points out, Yilmaz does not specifically disclose the step of applying the obtained stamp to the surface of a solid substrate. Yilmaz neither teaches nor suggests that the contemplated molecularly imprinted polymers can be supported to a substrate. In

fact, Yilmaz appears to only teach the production of polymers, and not the production of a solid substrate in the context of the uses contemplated in the present invention. In fact, Yilmaz, on page 2 paragraph [0014] states that "the immobilized template used in the imprinting process is a shape-forming template".

Neither Yilmaz nor Whitesides teaches or suggests the transfer of the binding cavity from the stamp (on the surface of which the binding cavity is formed) to a solid surface. Whitesides describes the formation of patterns of self-assembled monolayers on solid surfaces by forming a topography in a stamp, adsorbing a self-assembled monolayer on the stamp, then applying the stamp to a solid substrate, with the protruding surfaces of the stamp touching the solid surface and the recessed surfaces of the stamp not touching the solid surfaces (see Figs. 1 and 2 of Whitesides and associated text). As a result, the self-assembled monolayer is transfered to the solid surface only where the stamp is touching the solid surface. This enables the creation of an engineered pattern of the self-assembled monolayer.

By contrast, the binding cavity of the present invention can not be described as a self-assembled monolayer as it has shapes and functionalities precisely formed at the molecular level (see step (c) of claim 1). The method taught by Whitesides is limited to the resolution with which the stamp can be formed by lithographic or moulding methods. This is limited to one order of magnitude larger (10-20nm) than the molecular scale. This limitation means that Whitesides' method can in no way be used to form binding cavities on a solid surface.

A person of ordinary skill in the art, when considering Yilmaz, would not be motivated to consider the teaching of Whitesides since Yilmaz provides no such motivation to do so. The method taught by Whitesides is clearly different from the present invention and would be impractical in nature. The binding cavities as recited in the claims are three dimensional in nature and have chemical specificities, not just physical shapes.

In light of the above, Applicant respectfully submits that present independent claims 1, 36 and 40, and claims dependent therefrom, would not have been obvious having regard to Yilmaz in view of Whitesides. Withdrawal of the rejection is respectfully requested.

The Examiner rejected claim 6 under 35 U.S.C. 103(a) as being unpatentable over Yilmaz in view of Whitesides and Bolshakova et al. (Ultramicroscopy, Volume 86, Issues 1-2, January 2001, Pages 121-128). The Examiner stated that Yilmaz does not disclose treating the support with aminosiloxane: "However, the use of aminosilanes has become a common technique for covalent linkage of biomolecules to glass in biosensor and DNA chip fabrication". The Examiner further stated that "it would have been obvious to one of ordinary skill in the art...to have treated the solid supports with aminosiloxane, in the modified method

of Yilmaz, in order to facilitate immobilization of the template molecules". Applicant respectfully requests the Examiner to reconsider this rejection in light of the above arguments. Neither Yilmaz nor Bolshakova teach nor suggest a method of producing a molecularly-imprinted chemical detection device as outlined in claim 1, a method of producing a solid support stamp as outlined in the steps of claim 36 or a device in accordance with claim 40. Even if one were to consider silanization of glass with aminosilanes in accordance with Bolshakova, the person of ordinary skill in the art would still not arrive at the present invention. The purpose of aminosiloxane facilitates immobilization of the binding cavity which has unique specificity for the target of interest. None of the cited references, taken alone or in combination, provide such a teaching. Therefore, Applicant respectfully submits that the subject matter of claim 6 would not have been obvious having regard to Yilmaz in view of Whitesides and/or Bolshakova. Withdrawal of this rejection is respectfully requested.

Entry of the amendments is respectfully requested.

No fee is believed due for this submission. However, Applicant authorizes the Commissioner to debit any required fee from Deposit Account No. 501593, in the name of Borden Ladner Gervais LLP. The Commissioner is further authorized to debit any additional amount required, and to credit any overpayment to the above-noted deposit account.

Respectfully submitted,

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